Digger Specialties Inc.

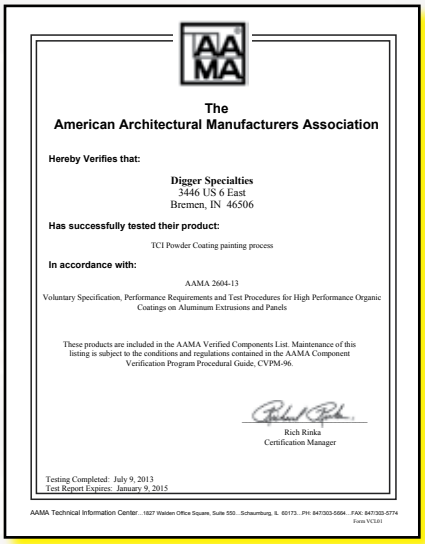
POWDER COATING TECHNICAL DATA

Certified PCI 4000 A2 (AAMA 2604) & A3 (AAMA 2605)

Architectural Grade Powder Coating

Certified PCI 4000 (AAMA 2604-13) compliant.
Regis, CourtYard®, Westbury, ScreenRail, Designer Fencing, Magena Star, DSI Columns and Aluminum CHR

Certified PCI 4000 A3 (AAMA 2605-13) compliant.
Regis, CourtYard®, Westbury, ScreenRail, Designer Fencing, Magena Star, DSI Columns and Aluminum CHR



The
American Architectural Manufacturers Association

Hereby Verifies that:

Digger Specialties
3446 US 6 East
Bremen, IN 46506

Has successfully tested their product:

TCI Powder Coating painting process

In accordance with:

AAMA 2604-13

Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels

These products are included in the AAMA Verified Components List. Maintenance of this listing is subject to the conditions and regulations contained in the AAMA Component Verification Program Procedural Guide, CVPM-96.

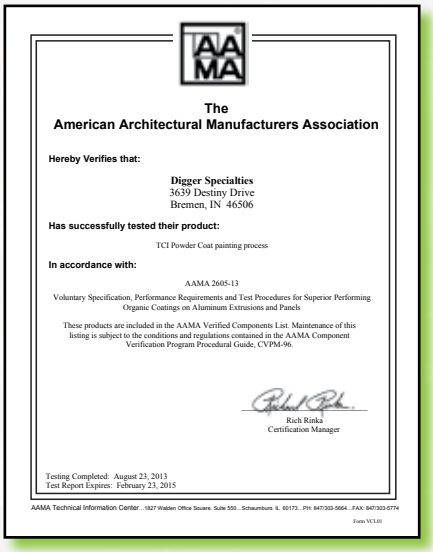
Rich Rinka
Certification Manager

Testing Completed: July 9, 2013
Test Report Expires: January 9, 2015

AAMA Technical Information Center...1827 Walden Office Square, Suite 550...Schaumburg, IL 60173...PH: 847/303-5664...FAX: 847/303-5774
Form VC101

PCI 4000 Certification
Renewal

Technical Manager



The
American Architectural Manufacturers Association

Hereby Verifies that:

Digger Specialties
3639 Destiny Drive
Bremen, IN 46506

Has successfully tested their product:

TCI Powder Coat painting process

In accordance with:

AAMA 2605-13

Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

These products are included in the AAMA Verified Components List. Maintenance of this listing is subject to the conditions and regulations contained in the AAMA Component Verification Program Procedural Guide, CVPM-96.

Rich Rinka
Certification Manager

Testing Completed: August 23, 2013
Test Report Expires: February 23, 2015

AAMA Technical Information Center...1827 Walden Office Square, Suite 550...Schaumburg, IL 60173...PH: 847/303-5664...FAX: 847/303-5774
Form VC101

www.diggerspecialties.com

American Architectural Manufacturers Association (AAMA) Performance Requirements For Pigmented Organic Coatings Defined.

AAMA Tests	TYPICAL Polyester TGIC	AAMA 2603	AAMA 2604-13	AAMA 2605-13
• Dry Film Hardness	No test	No coating rupture	No coating rupture	No coating rupture
• Dry Adhesion	No test	10% coating removal	No coating removal	No coating removal
• Wet Adhesion	No test	10% coating removal	No coating removal	No coating removal
• Boiling Water Adhesion	No test	No test	No coating removal	No coating removal
• Impact Resistance	No test	No coating removal	No coating removal	No coating removal
• Abrasion Resistance	No test	No test	ACV 20 minimum *	ACV 40 minimum *
• Muriatic Acid Resistance	No test	No visual change	No visual change	No visual change
• **Mortar Resistance**	No test	No visual change	**No visual change**	**No visual change**
• Nitric Acid	No test	No test	5ΔE max. change	5ΔE max. change
• Detergent Resistance	No test	No visual change	No visual change	No visual change
• Window Cleaner Resistance	No test	No test	No visual change	No visual change
• **Humidity Resistance**	No test	1500 hours	**3000 hours**	**4000 hours**
• **Salt Spray Resistance**	No test	1500 hours **	**3000 hours ** **	**No Test**
• Cyclic Corrosion Testing	No test	No test	**No test**	**2000 hours ** **
• **Color Retention (S. FL)**	No test	1 year minimum fade	**5 years max. 5ΔE change**	**10 years max. 5ΔE change**
• **Gloss Retention**	No test	No test	**5 year 30% retention**	**10 year 50% retention**

* Abrasion Coefficient Value ** 0" to 1/16" creepage from scribe is passing

Typical Polyester TGIC Powder (COMPETITORS)

Starting L:	3.46	Ending L:	32.85
a:	.26	a:	.48
b:	-1.6	b:	2.25
Gloss:	57	Gloss:	.85
Comp. #:	9.5	Comp. #:	33.00

Gloss Ret.:		Δ E Change:	
1 year:	48% P	1 year:	16.9 F
2 years:	9% F	2 years:	28.0 F
3 years:	4% F	3 years:	29.0 F
4 years:	2% F	4 years:	26.6 F
5 years:	1% F	5 years:	23.5 F

F= Failing AAMA 2603-02.

AAMA 2603 Powder

Starting L:	7.88	Ending L:	21.63
a:	-.91	a:	-.20
b:	.58	b:	-1.52
Gloss:	29.8	Gloss:	7.4
Comp. #:	7.8	Comp. #:	21.6

Gloss Ret.:		Δ E Change:	
1 year:	78% P/F	1 year:	5.2 P/F
2 years:	61% P/F	2 years:	7.7 P/F
3 years:	57% P/F	3 years:	8.3 P/F
4 years:	40% P/F	4 years:	12.4 P/F
5 years:	25% P/F	5 years:	13.8 P/F

P= Passing AAMA 2603-02 • F= Failing AAMA 2604-13.

DSI Satin Black AAMA 2604-13 Powder

Starting L:	11.85	Ending L:	16.85
a:	-.05	a:	-.95
b:	-1.18	b:	-1.75
Gloss:	22.7	Gloss:	16.3
Comp. #:	11.8	Comp. #:	16.7

Gloss Ret.:		Δ E Change:	
1 year:	96% P	1 year:	.5 P
2 years:	88% P	2 years:	3.3 P
3 years:	79% P	3 years:	3.5 P
4 years:	77% P	4 years:	4.5 P
5 years:	72% P	5 years:	4.9 P

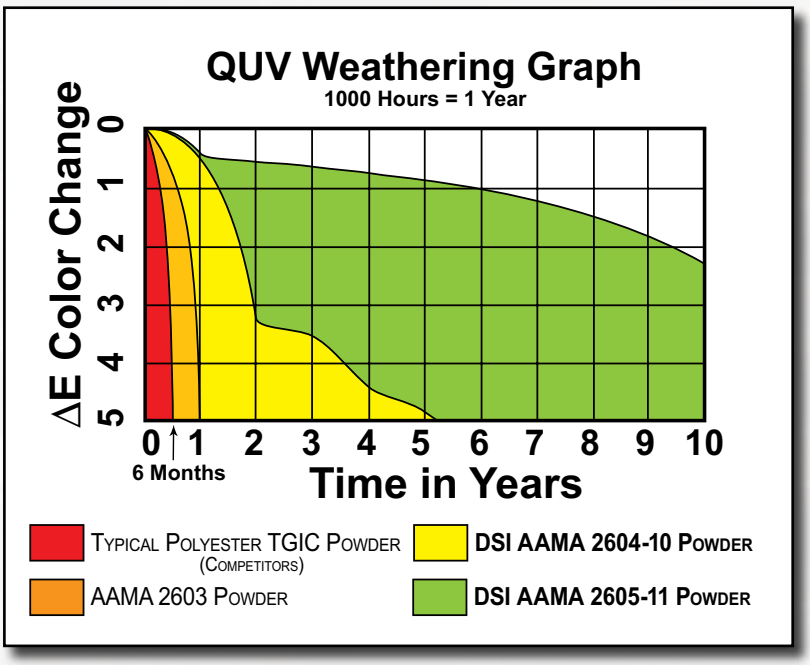
P= Passing AAMA 2604-13.

DSI Satin Black AAMA 2605-13 Powder

Starting L:	12.66	Ending L:	11.65
a:	-.73	a:	-.15
b:	-.67	b:	-.25
Gloss:	17.0	Gloss:	16.5
Comp. #:	10.6	Comp. #:	11.6

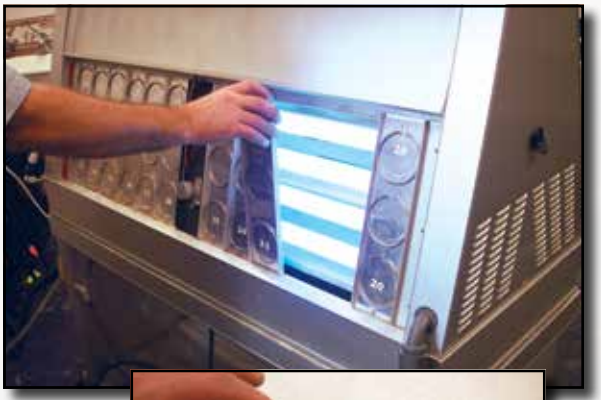
Gloss Ret.:		Δ E Change:	
1 year:	100% P	1 year:	.5 P
2 years:	99% P	2 years:	.9 P
3 years:	98% P	3 years:	.7 P
4 years:	98% P	4 years:	.9 P
5 years:	97% P	5 years:	1.0 P

P= Passing AAMA 2604-10 and AAMA 2605-13.



QUV Accelerated Weathering Tester

Fluorescent lamps, moisture, and heat provide weathering simulation at an estimated rate of **1000 hours = 1 year** per QUV documentation.



Gloss Tester

Measures the gloss level of coating.

Color Spectrometer

Measures color value per L.a.b. scale shown.

L, a, b Color Scale

L VALUE

Black = 0 Gray = 50 White = 100

a VALUE

+ value = red* < 0 > - value = green*

b VALUE

+ value = yellow* < 0 > - value = blue*

* The larger the +/- number... the deeper the color.

POWDER COATING

1

The raw premium-grade aluminum is inspected to be free of blemishes and is not exposed to the outdoor elements.

2

The product enters a heated acidic cleaning stage to remove extrusion debris and fabrication oils.

3-6

CLEAN: City water rinse
CLEANER: Recycling reverse osmosis water rinse
CLEANTEST: Pure reverse osmosis water rinse
SEALER: Dried-in-place aluminum sealer

7-8

A 200 MPH air blast removes water drops from the pre-treated aluminum. A convection oven completes the dry-off process.

9

Powder is applied with 18 automated and 2 manual spray guns. Compressed process air is dried to -35°F Dew Point for superior adhesion.

10

The powder coating is then bonded and adhered to the aluminum sub-straight in a 400 degree cure stage.

The powder coating application booth produces zero VOC emissions. Powder is stored and applied in a climate controlled positive pressure environmental room. Ten pre-treat system titration checks twice per shift maintain system parameters and ten QC checks are completed every hour on product coming off the powder-coating line. Parts are not touched by human hands during the pre-treat, dry-off, application and cure process to maintain ultimate cleanliness of powder-coated parts.

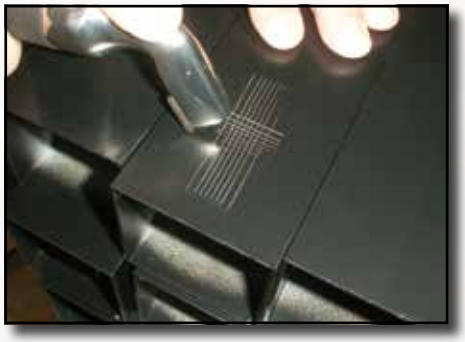
DSI is a PCI 4000 certified and verified AAMA 2604-13 and AAMA 2605-13 compliant powder coating applicator. The powder coating process is accredited by the American Architectural Manufacturing Association and the Powder Coating Institute. Our powder coating is custom blended from a Super Durable Polyester TGIC (Triglycidyl Isocyanurate) resin-base, using premium pigmentation to meet AAMA 2604-13 specifications. Our AAMA 2605-13 is a fluorocarbon polymer resin system.

Automated Chemical Test
Pretreatment chemicals are monitored and added automatically but titration is checked manually twice per shift.

Cure Oven Temperature Test
Cure oven air temperatures and part temperatures, during the cure process, are monitored frequently to ensure proper curing of powder coating.

System Titration Test
Ph levels are checked twice per shift as part of the pretreatment titration check.

Coating Thickness Test
Coating thickness is measured and plotted every hour.



ASTM D3359 Crosshatch Test
Hourly crosshatch testing is completed per ASTM D3359 to test coating adhesion.

PCI#8 Solvent Cure Test
Solvent testing per PCI#8 is completed hourly to test for complete cure.

DSI Digger Specialties Inc.

Circle of Commitment

Dynamic • **S**olutions • **I**nnovation

AFA

CERTIFIED PCI 4000

NAHB

TAMA Manufacturer of Verified Components

Manufacturing & Distribution Plants:
• Bremen, IN • Randleman, NC • Sarcoxie, MO • Valdosta, GA

Note: Data from year 1 through 4 is based on testing from DSI QUV weathering machine.
Year 5 is estimated based on data from years 1-4. Photos taken at 4000 hours/4 year time frame.

Quality Products By: DSI Digger Specialties Inc.

DISTRIBUTED BY:

www.diggerspecialties.com SP11/13 99647